WORCESTER POLYTECHNIC INSTITUTE

Date: November 28, 2023

To: Grace Wang, President; Art Heinricher, Provost and Senior Vice President ad interim; Arne Gericke, Dean of Undergraduate Studies ad interim; Terri Camesano, Dean of Graduate Studies; Debra Jackson, Dean of the Business School; Jean King, Dean of Arts & Sciences; John McNeill, Dean of Engineering; Mimi Sheller, Dean of the Global School; Rachel LeBlanc, Associate Vice President, Strategic Initiatives

From: Undergraduate Outcomes Assessment Committee (UOAC)
Doug Petkie, Chair; Andrea Arnold, MA; Chrys Demetry, Director, Morgan Teaching and Learning Center; Soroush Farzin, CEAE; Destin Heilman, CBC, CAP appointee; Courtney Kurlanska, DIGS; Melissa Leahy, Director of IR; Kent Rissmiller, Provost's Appointee

Cc: Berk Sunar, Chair, Committee on Academic Policy; Sarah Olson, Chair, Committee on Graduate Studies & Research

RE: **SUPPORT FOR EDUCATIONAL ASSESSMENT AT WPI**

We are writing to call for more institutional support for assessment of student learning and outcomes of undergraduate and graduate degree programs. Such support is essential for any university that is committed to student success and continuous improvement. Furthermore, our NECHE accreditation letter in 2021 made clear that they expect us to be able to report progress in this area by 2026. The rest of this memo provides background, details about challenges faced by the Undergraduate Outcomes Assessment Committee (UOAC) in meeting its charge, weaknesses identified by accreditors, and specific requests and recommendations for more support.

BACKGROUND ON THE UNDERGRADUATE OUTCOMES ASSESSMENT COMMITTEE
In 2002, in response to reforms in the accreditation of higher education, the WPI faculty created the Undergraduate Outcomes Assessment Committee (UOAC) as a permanent subcommittee of the Committee on Academic Policy. UOAC is comprised of four elected faculty with rotating three-year terms, a faculty member appointed by CAP annually for a one-year term, an undergraduate student, and three ex-officio members: the Director of the Morgan Teaching and Learning Center, a representative of the Provost's Office (previously Art Heinricher as Dean of Undergraduate Studies and currently Kent Rissmiller as Associate Dean of the Global School), and beginning in 2017, the Director of Institutional Research.

In 2004, the faculty adopted a set of ten "WPI Undergraduate Learning Outcomes" to guide program development and assessment for improvement and accreditation. Since then, the faculty have also adopted learning outcomes for the MQP and IQP, and most departments and programs (including the Great Problems Seminars) have developed learning outcomes for their undergraduate students.

UOAC's responsibilities are defined in the Faculty Handbook as follows: 1) proposing policy with regard to WPI's undergraduate learning outcomes; 2) identifying and facilitating procedures for assessing student achievement on those outcomes; 3) coordinating outcomes assessment activities on campus; 4) communicating assessment results; and 5) formulating academic policy recommendations based on its assessment activities. In short, UOAC was created to monitor our performance and ensure that undergraduate students obtain the education that we promise.

To fulfill these responsibilities, UOAC created an assessment plan to guide its work. That plan was approved by the faculty in 2005. Among other things, it identifies the sources of information relevant for the on-going assessment of the ten campus-wide undergraduate learning outcomes. These sources include data available to us as a result of our participation in external studies like the National Survey of Student Engagement (NSSE) and the Engineering Exit Survey by Educational Benchmarking Incorporated (EBI), now called Skyfactor. Additional sources of information include Student and Advisor Reports on MQP and IQP Learning, departmental assessment of MQPs, periodic assessment of IQPs by the Global School, assessment of the Humanities & Arts Requirement outcomes by that department, and recently, the Undergraduate Enrolled Student Survey. Other data must be mined from student records to indicate, for example, basic competency in mathematics. Ad-hoc groups of faculty, staff, and external consultants have also created and deployed alumni surveys in 2012 and 2021 that include items useful for assessment of learning outcomes. Finally, WPI occasionally participates in other studies, like the Wabash National Study and more recently the Global Engagement Survey, which provide data useful for assessment purposes.

In the past decade, UOAC's main accomplishments have been revising Outcome 8 to focus on global and intercultural competency and developing assessment instruments: the Student Reports on IQP and MQP Learning and Advising and the Advisor Reports on IQP and MQP Learning. Last year, we focused on updating our Assessment Calendar and data sources for the next ten years to support accreditation activities. These accomplishments lie within a subset of UOAC's responsibilities listed above: 1) proposing policy; 2) identifying and facilitating assessment procedures; and 3) coordinating campus-wide assessment activities.

CHALLENGES AND LIMITATIONS OF UOAC AND OF WPI'S MODEL FOR MONITORING EDUCATIONAL EFFECTIVENESS
UOAC has had much less success "closing the loop" and meeting its other responsibilities: 4) communicating assessment results; and 5) formulating academic policy recommendations based on its assessment activities. The committee has a backlog of work including finalizing an assessment plan for Outcome 8 on global and intercultural competency; deliberating areas of weakness and formulating recommendations to CAP to address them (e.g., Outcome 9 on ethics); and working with the eProjects team to

communicate results of Advisor Reports on IQP and MQP Learning. This backlog is due to numerous structural barriers rather than lack of commitment or effort, specifically:

Steep learning curve for UOAC members, lack of continuity, and reliance on institutional memory: Most new members do not have experience with assessment of student learning, and each year we need to orient them to the complexity of the Undergraduate Outcomes Assessment Plan and its myriad data sources. Chrys Demetry, Art Heinricher, and Kent Rissmiller have been the main sources of institutional knowledge on UOAC for the past 20 years. With Chrys and Art stepping out of their ex officio positions, the committee will have less institutional knowledge in the years ahead.

Few mechanisms for coordination and accountability: Over the years, UOAC has tried its best to facilitate and coordinate program review activities that we rely on, especially departmental MQP reviews, with limited success. Without uniform data from each department and program, we cannot assemble a picture of the achievement of MQP learning at WPI. As a committee, we do not have the charge or capacity to assist with program reviews or to hold departments and programs accountable for doing MQP, IQP, and HUA reviews in ways that also support needs for campus-wide assessment of student learning outcomes. A related problem is that there is no operating budget to support summer outcomes assessment activities by faculty; our understanding is that the Dean of Undergraduate Studies must identify funds from other sources.

Gaps in support and expertise: UOAC is capable of developing assessment plans and interpreting relevant data, however, we do not have the capacity to design and execute studies of student learning or even assemble existing data from all the relevant sources in a meaningful way. The task involves not only sorting the data files received from a myriad of sources, but also assembling departmental reports and scouring student records for the appropriate information. These sources must also be supplemented by new studies as our programs evolve. *Engagement of an Assessment Coordinator to take on these roles was first identified as a need in our 2005 Undergraduate Outcomes Assessment Plan, referenced above, but no action has been taken on this recommendation despite regular requests to the Administration over the past 15 years.* Professor Demetry spent many, many hours in spring and summer 2023 to update data in the Undergraduate Outcomes Assessment Plan, including results from NSSE 2019, Skyfactor 2019, Student Reports on IQP and MQP Learning, and UESS 2021; this is not a sustainable model going forward.

Related challenges for the Committee on Graduate Studies and Research (CGSR): The absence of measurable graduate program outcomes and systematic outcomes assessment processes has been a weakness for many years. First and foremost, coordinating assessment of graduate program outcomes has never formally been articulated as a responsibility for CGSR, which already has a full plate. In correspondence between UOAC and CGSR members in spring 2023 (Petkie, Demetry, Rao, Camesano), it became clear that CGSR encounters similar challenges as UOAC due to lack of membership continuity and

support. Some CGSR Chairs in recent years (Rao, Fischer) led drafting of high-level graduate outcomes and presented them to graduate coordinators, but that work has since petered out. An informal conversation with this year's Chair (Olson) indicated that this issue is not yet on their agenda.

ACCREDITATION WEAKNESSES AND NEEDS

Not addressing these longstanding weaknesses in assessment capacity poses accreditation risks to WPI. Following are excerpts from recent accreditation communications:

- NECHE Commissioners' re-accreditation letter, 2022, with instructions for interim report in Fall 2026: "...in addition to the information included in all interim reports, the institution [should] give emphasis to its success in: ... 5) *conducting reviews of its graduate-level programs and clarifying the role of the Institutional Research Office in supporting this work*;"

- NECHE Visiting Team Report, 2021 (p. 35) in its Summary listing of Concerns: "*It would benefit the institution to have comprehensive internal and external assessment of all academic programs on a regular rolling basis, supported by a robust Institutional Research Office.*"

- NECHE Visiting Team Report, 2021 (pp. 10-11) Standard Four: The Academic Program – Integrity in the Award of Academic Credit: "For those programs that employ an accrediting body to review academic programs, e.g., Accreditation Board for Engineering and Technology (ABET), there is a clear process for assessing overall academic effectiveness. However, *those programs without such oversight do not (with few exceptions) appear to employ an extensive evaluation process.*".... "The Undergraduate Outcomes Assessment Committee (UOAC) reviews assessment data, plans for future assessment, and reports to the faculty Committee on Academic Policy (CAP) when data indicates the need for program or policy review. *The self-study and meetings with WPI faculty and staff did not offer significant insight to changes made from analysis of this data.*"

- NECHE Visiting Team Report, 2021 (p. 29) Standard Eight: Educational Effectiveness – Undergraduate SLOs Assessment: "...the analysis of student survey results from the 2017-2019 period showed that the lowest average score was for the learning outcome related to understanding and applying ethical standards.... The 2019-2020 UOAC annual report shows that the committee discussed *the need for a university-level ethics outcomes assessment plan and support for programs in this area. The 2020-2021 UOAC report shows that the committee is still working on this, but the review team could not ascertain the level of progress made toward the creation of such a plan.*"

- NECHE Visiting Team Report, 2021 (p. 32) Standard Eight: Educational Effectiveness – Graduate SLOs Assessment: "Upon review of catalogs, the review team was able to confirm that some graduate programs have well-defined educational outcomes, while outcomes stated for other programs are general and less measurable…The institution was able to provide some evidence that graduate programs have used the results of the assessment outcomes for program improvement… However, *the review team could not confirm that assessment is done systematically and evenly across all graduate programs."*

- NECHE Visiting Team Report, 2021 (p. 33) Standard Eight: Educational Effectiveness – Program-level Assessment: "Per WPI's self-study, programs without an external accreditation or certification are expected to undergo program reviews every four years. The institution provided data that suggests that some programs have recently undergone this process while others have not done so for a long while… *In conversations with staff, we were able to identify that there is no formal schedule for such reviews.* The timing of the reviews seems to be based on the availability of the faculty interested in taking on the assignment. *The team was not able to confirm that every non-externally accredited program has been reviewed in the period since the last accreditation visit in 2012.*

- According to John McNeill, Dean of Engineering, the 2020 ABET visiting team observed a lack of uniformity in assessment practices across departments. These inconsistencies were flagged and required significant effort from the departments to respond, not because they were doing assessment poorly or had genuine weaknesses, but more because of lack of uniformity. Dean McNeill shared with us the value he sees in having support for coordination and uniformity in assessment practices:

   "When an ABET team visits a campus for accreditation, the visitors fan out to their corresponding departments on the first day for meetings with the department head, tours of the department facilities, and meetings with selected faculty. On the evening after these initial meetings, the entire team meets to "compare notes" to inform their activities on the second day of the visit. At both the 2020 visit (when I was Dean of Engineering and was responsible for all 10 programs being accredited) and the 2014 visit (when I was responsible for ECE) the visitors identified inconsistencies among the department accreditation materials due to lack of uniformity and sharing of practices across departments. These were flagged and required significant effort from the departments to respond (with very little time to respond!) to avoid problems with receiving full accreditation. In one case, a department was cited for a weakness that required remedial action; while we disagreed with the weakness designation, we chose to go through the remedial activity rather than go through the process for contesting the weakness.

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It should be noted that the inconsistencies were not due to genuine need for departments to do assessment differently; it was just due to lack of coordination.

Having more uniformity across departments would be helpful for at least three reasons:
1) The process of coordination would allow the departments to learn from each other and actually do assessment better
2) Uniformity of assessment practices would give the ABET team one less problem to "find" from comparing notes, as well as showing WPI's commitment to high quality assessment
3) In the case of a department actually having a deficiency in assessment, the process of coordination would allow us to identify the deficiency well in advance of the ABET visit, and implement correction to assessment practices."

REQUESTS AND RECOMMENDATIONS

Another plea for staff support and other resources: UOAC is responsible for guiding institutional level assessment of undergraduate learning but, as we've said since 2005, we require staff to conduct it. Frankly, WPI's needs in this area are significantly underfunded and our haphazard efforts leave us unable to adequately demonstrate student achievement institute-wide and identify means for program improvement. Program-level assessment, especially for non-ABET programs and non-AACSB graduate programs, also needs more support. This work should be undertaken by an Assessment Coordinator with expertise in educational assessment and the data mining and analysis skills to turn data into knowledge useable by faculty committees and programs. Of course, in addition to satisfying the continuing need to provide accurate information to ABET, NECHE and AACSB, we must maintain assessment efforts to monitor the quality and ensure the continuous improvement of our own programs. Educational assessment must become a routine activity, but this cannot happen without dedicated resources.

Creating accountability structures: We believe that supports and accountability for implementing regular assessment of learning in undergraduate and graduate programs should primarily be directed by a combination of undergraduate and graduate Deans, school Deans, and an Assessment Coordinator, not faculty governance committees.

Members of the Undergraduate Outcomes Assessment Committee are available to discuss WPI's needs in these areas at your convenience. We look forward to hearing from you regarding any resources that might be brought to this need in the coming budget year.